Kingshill

POWER SUPPLIES

TECHNICAL DATA

'V' SERIES

KINGSHILL ELECTRONIC PRODUCTS LTD., TORRENS STREET, LONDON, EC1. 01-837 9865

THIS SPECIFICATION IS APPROVED
FOR USE IN THE CALIBRATION OF
COMPANY INSTRUMENTS.
9
QC FACILITIES
CALIBRATION DEPARTMENT
DATE: 2 - 3 - 80
BRITISH AIRCRAFT CORPORATION, STEVENAGE.

'V' SERIES

Kingshill
STABILISED POWER SUPPLY
MODEL 500
fine
volts
coarse
current limit
volts — meter — current
x2
mains
output

Kingshill
STABILISED POWER SUPPLY
mains
on
volts
current
coarse
fine
volts
current limit
press
volts
x2
output −
Ref.
Ref. output +

OPERATING INSTRUCTIONS

INSTALLATION.

Before the power supply is connected to the mains it is important that the mains transformer tappings are set correctly to correspond with the user's mains voltage. When despatched from the works the instrument is ready for use at 240 volts. In the standard instruments, the primary of the mains transformer is tapped 10, 0, 200, 220, 240, volts, thus covering the range 200-250 volts in 10 volts steps or it has twin primaries of 5-0-100-110-120, covering the ranges 100-125 and 200-250 volts in 5 volts steps. Adjustment is obtained by altering the soldered connections on the mains transformer panel. To alter the primary taps the instrument should first be removed from the case by undoing the two screws on the underside and sliding the unit out, front panel first. The mains transformer tappings can be clearly seen, being situated along the one side of the transformer panel. It remains to connect the red and blue wires to the correct lugs so that the sum of the voltages marked on the two tags is equal to the mains voltage. Twin primaries are paralleled for 100-125 volts and connected in series for 200-250 volts.

IMPORTANT

Always ensure free passage to the cooling air flow under the instrument and out of the top vents, or overheating may occur under certain loading conditions.

THE CONTROLS

All operating controls are conveniently placed on the front panel.

(1) MAINS SWITCH. Self-explanatory.

(2) VOLTAGE CONTROLS. Coarse and fine controls allow easy setting at any required voltage between zero and maximum.

(3) METER SWITCHES. In the 'Current' position of this switch the current scale on the meter is brought into use. In the 'volts' position the higher of the two voltage scales applies, and when the X2 button is pressed the sensitivity is doubled for easy setting of low voltages, and the lower voltage scale should be read.

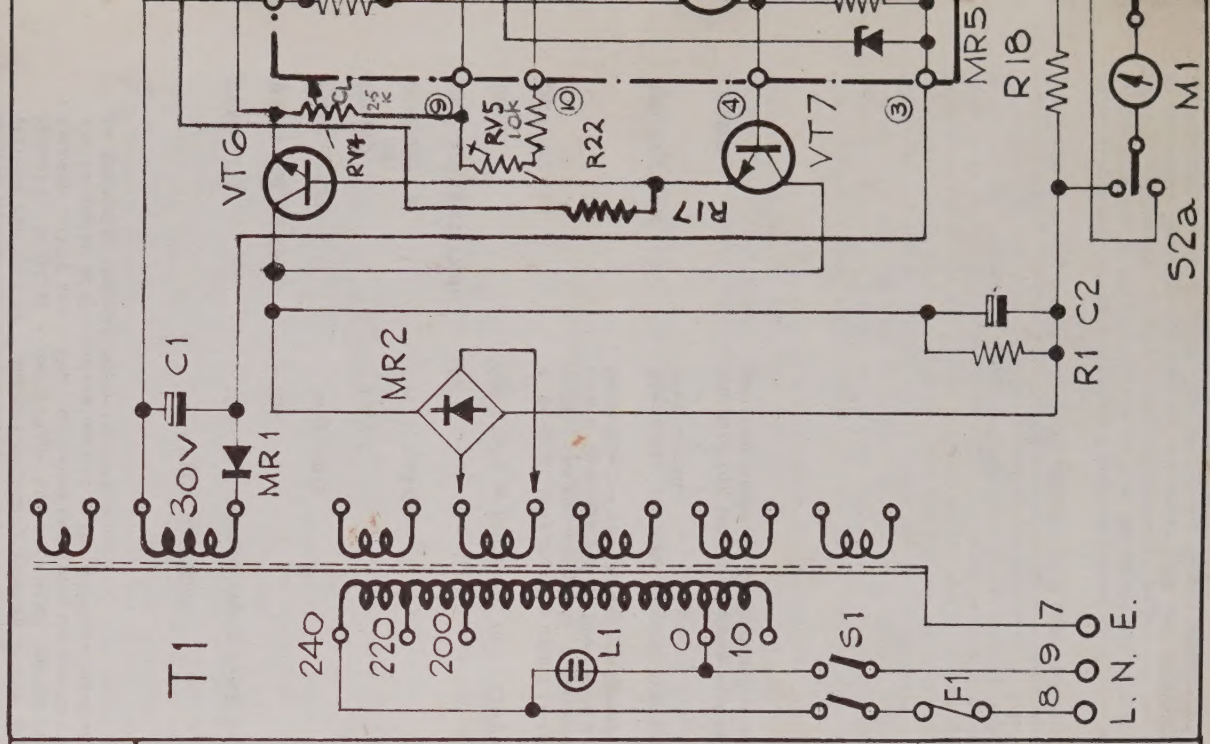
(4) CURRENT LIMIT. The protection is of the 'Constant Current' form of limiter which is adjusted by means of the potentiometer on the front panel. The associated push button places a low resistance across the output of the unit, and when this is pressed a virtual short-circuit exists allowing the limiter control to set up the desired limit current read on the A scale of the meter. The push button should be operated only long enough to set up the desired limit value to avoid unnecessary heating. At the output voltages below 3volts it may be necessary to use an external short-circuit for this purpose as the internal 'shorting' resistance may not be of sufficiently low value. It is always advisable to set the current limiter up at a low output voltage, say, 10volts if possible to minimise the discharge pulse of current from the output capacitor that flows through the push button when it is operated.

(5) OUTPUT TERMINALS. Units having 4-terminal output are wired internally as such, but shorting wire is included inside the unit across each OUTPUT and REF pair of terminals to convert the output to 2-terminal since this is usually required for bench use. The OUTPUT and REF terminals are thus strapped and either one or both may be used for external connection. If 4-terminal output is desired, the internal short-circuit should be removed from each pair of terminals and the load connected in the usual way.

(6) CONSTANT CURRENT APPLICATION. To use as a constant current supply, remove R14 and the internal link between – OUT and – REF terminals. A reference resistor can then be connected externally between – REF and + OUT to carry the required current at a low voltage and a constant current output can be obtained between – OUT and – REF, the latter now being the positive terminal. This current can be varied by the voltage applied to the reference resistor and its stability will be effected by the stability of this resistor.

SPECIFICATIONS

STABILITY	> 1000 : 1 (% change input voltage/% change output voltage).
MAINS TOLERANCE	± 10%
INSULATION	> 30 M OHMS
RIPPLE	< 1 mV .
IMPEDENCE	< 0.2 Ω 100 Kc/s.
MAX. AMBIENT TEMP.	45°C
INPUT	200 - 250V in 10V steps, 100 – 125 V to order.
OUTPUT	4 Terminal fully floating output [2 terminal on units 200 to 1500]. Output voltage is adjustable by coarse and fine control in single sweep. Meter accuracy to BS 89 (1954). The meter has two voltage and one current range.
PROTECTION	Electronic constant current overload protection down to short circuit.
FINISH	Standard two tone grey stove enamel. Hard wearing scratch resistant washable Vinyl enamel on case.

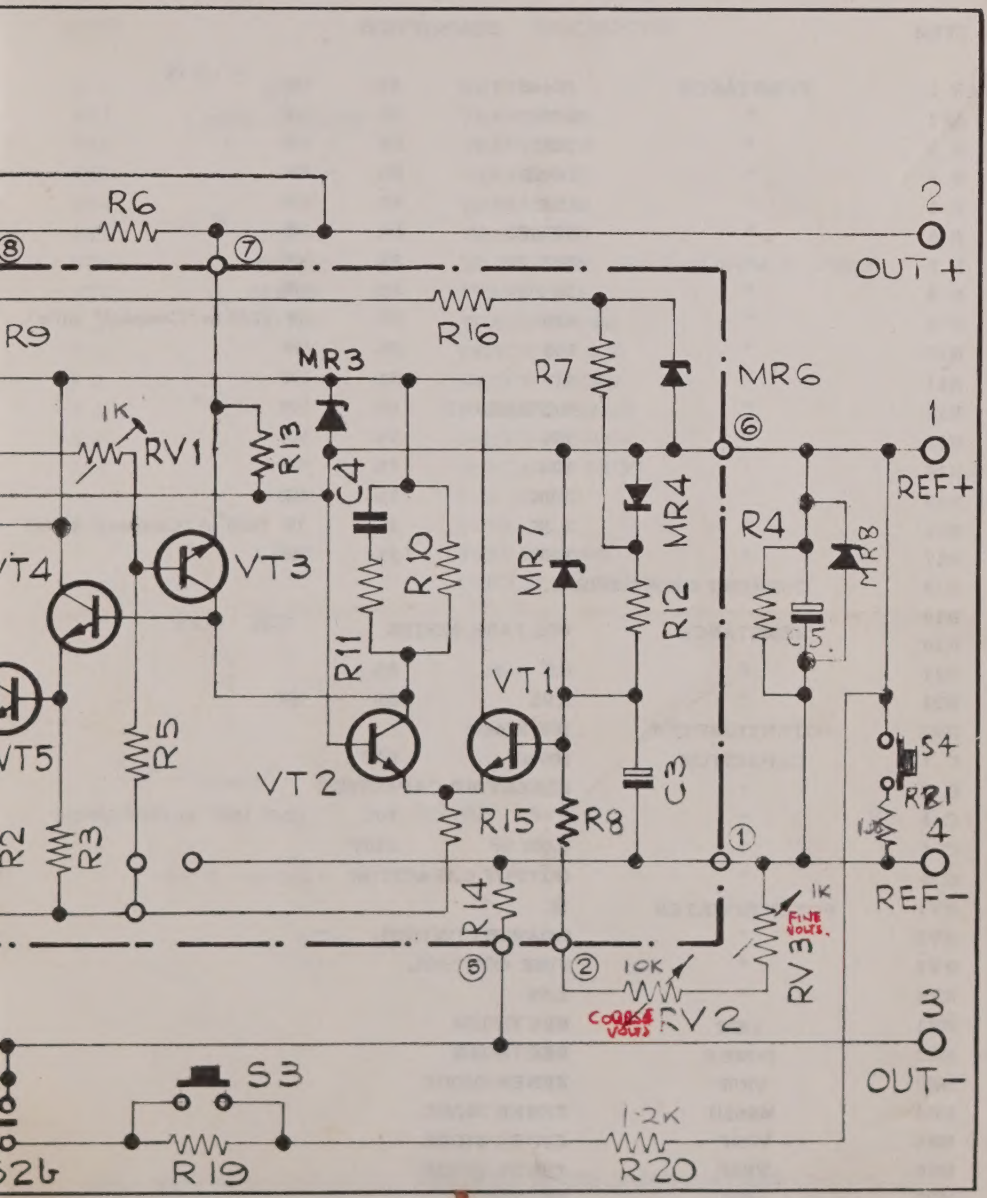


ISSUE	
MOD	

KINGSHILL ELECTRONIC PRODUCTS LTD. TORRENS WORKS, TORRENS STREET LONDON E.C.1.

DRAWN	TITLE CIRCUIT DIAGRAM	DRG. No. ASMIC 1349
DATE 20-10-66		
APPROVED		

R.D.O.


R6
2
OUT +
R9
R16
MR3
R7
MR6
1K
RV1
R13
C4
1
REF+
VT4
VT3
R10
MR7
R12
MR4
R4
MR8
R11
VT1
C5
S4
VT5
R5
VT2
C3
RB1
R15
R8
4
REF −
R2
R3
R14
1K
Fine Vout
RV3
10K
Coarse Vout
RV2
3
OUT −
S3
1·2K
R19
R20

PARTS LIST 'V' SERIES

14+14+9+1.

ITEM	DESCRIPTION				
R 1	RESISTANCE	Bleed	5%	½W	5.6K
R 2	"	3.9K	5%	½W	
R 3	"	10K	5%	½W	
R 4	"	LOAD	5%	3W	
R 5	"	15K	5%	½W	
R 6	"	SERIES	5%	3W	1.8Ω
R 7	"	390	5%	½W	
R 8	"	22	5%	½W	
R 9	"	470	5%	3W	(270 in "Compact" units)
R10	"	10K	5%	½W	
R11	"	47	5%	½W	
R12	"	REFERENCE	5%	½W	1.8K
R13	"	100	5%	½W	
R14	"	100	5%	½W	
R15	"	3.9K	5%	½W	
R16	"	1.2K	5%	1W	(820 in "Compact" units)
R17	"	100	5%	½W	
R18	CURRENT SHUNT SPIRAL				
R19					
R20	RESISTANCE	VOLTAGE SERIES			1.2K
R21	"	0.5 1Ω	5%		
R22	"	3.9K	5%	½W	
RV5	POTENTIOMETER	10K Preset			
C 1	CAPACITOR	100 uF	64V		
C 2	"	RESERVOIR CAPACITOR			1000MF 70V.
C 3	"	8 uF 6@64	70V		(2uF 150V in 100V Units)
C 4	"	0.005 uF	250V		
C 5	"	OUTPUT CAPACITOR			100MF 64V
RV1	POTENTIOMETER	IK			
RV2	"	COARSE CONTROL			10K
RV3	"	FINE CONTROL			1K
RV4	"	2.5K			
MR1	10D2	RECTIFIER			
MR2	POWER	RECTIFIER			
MR3	VR9F	ZENER DIODE			
MR4	MR62H	ZENER DIODE			
MR5	VR9F	ZENER DIODE			
MR6	VR9F	ZENER DIODE			
MR7	10D2	RECTIFIER			
MR8	10D2	RECTIFIER			

PARTS LIST 'V' SERIES

ITEM		DESCRIPTION
M 1	M32	METER
VT1	40231 or BC108B	TRANSISTOR
VT2	" "	TRANSISTOR
VT3	" "	TRANSISTOR
VT4	" "	TRANSISTOR
VT5	40231	TRANSISTOR
VT6	DRIVER	TRANSISTOR (Not used below 2a output)
VT7	SERIES	TRANSISTOR
T 1	MAINS	TRANSFORMER
S 1		SWITCH D.P.S.T.
S 2		SWITCH SLIDER
S 3		SWITCH PUSH-ON
S 4		SWITCH PUSH-ON
L 1		INDICATOR NEON
	MTRV	P.C. BOARD
F 1		FUSE
	L1596	FUSE HOLDER
		CIRCUIT DIAGRAM

THE COMPANY RESERVES THE RIGHT TO AMEND SPECIFICATIONS WITHOUT PRIOR NOTICE.

44V
470.

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